

USSR

UDC 575.851.55.094

LISENKO, A. I., CHERNYAVSKIY, V. I., KULAKOVA, G. S., and ISKRITS'KIY,
G. V., Khar'kov Scientific Research Institute of Vaccines and Sera,
Khar'kov

"Ultrastructure of Type E Clostridium botulinum During the Process of Toxin
Formation"

Kiev, Mikrobiologichniy Zhurnal, Vol 35, No 3, May-Jun 73, pp 308-312

Abstract: The structure of Cl. botulinum in relation to the amount of toxin formed during cultivation at 24-26° in Martin broth + 3% dextrin was studied by electron microscopy. It was established that while a small amount of toxin entered the medium in the initial stages of development of the bacterial population, the principal quality of toxin was released in the stage of logarithmic death of the bacterial cells. At the time of the highest toxin activity, the maximum amount of cells with a destroyed wall was observed and the cells exhibited a lowered electron-optical density of the cytoplasm.

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ILISAVSXIY, Yu. V. and KULAKOVA, L. A., Physicotechnical Institute imeni
A. F. Ioffe, Academy of Sciences, USSR, Leningrad

"Lattice Absorption of Ultrasound in CdS According to Opticoacoustic
Dispersion Data"

Leningrad, Fizika Tverdogo Tela, Vol 16, No 1, Jan 73, pp 286-288

Abstract: An investigation is made of the lattice absorption of ultrasound waves in CdS at room temperature in the frequency range of $f = 0.26\text{--}1.8 \text{ Cm}^{-1}$ by the method of light dispersion in sound. Sonic attenuation was determined on the basis of change of the intensity of light dispersed on an acoustic wave during the movement of a laser beam along the specimen. A graph is presented which represents the coefficient of lattice absorption in CdS for transverse piezoactive and nonpiezoactive sound waves propagating in the base plane. A second graph represents the frequency relationship of the absorption of longitudinal sound waves propagating along and perpendicularly to the C axis. The experimental results lack qualitative agreement with theory in the case of transverse waves, but have such agreement for longitudinal waves. The approximate nature of the existing theories of lattice sound absorption does not permit a strict quantitative analysis to be made of data pertaining to the attenuation of longitudinal waves. 2 figures. 14

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Acc. Nr:

AP0037245

Ref. Code: UR 0301

PRIMARY SOURCE: Voprosy Meditsinskoy Khimii, 1970, Vol 16,
Nr 1, pp 95-98

HAPTOGLOBIN METABOLISM AT THE ANTISEPTIC INFLAMMATORY PROCESS

V. M. Rodionov, A. V. Pospelova, Yu. P. Reshetko, T. G. Kulakova

Institute of Biological and Medical Chemistry USSR Academy of Medical Sciences,
Moscow

Haptoglobin metabolism in control dogs and at the anti-septic inflammatory process induced by subcutaneous terpine oil administration has been studied. Dogs were injected with haptoglobin ^{113}In and changes in total radioactivity of the animal, blood serum label excretion, the volume of circulating plasma, and serum haptoglobin concentration were registrated. In the period of inflammatory focus development the rearrangements of haptoglobin from blood into tissue, decreases in the rate of its catabolism and increase in its synthesis took place.

3. A.

REEL/FRAME
19730172

USSR

KULAKOVSKAYA, T. YE.

"The Solution of One Class of Games of Four Persons"

Teoriya Igr [Games Theory -- Collection of Works], Yerevan, 1973,
pp 216-219 (Translated from Referativnyy Zhurnal Kibernetika, No 10,
1973, Abstract No 10V473)

Translation: A cooperative of four persons is studied, fixed in (0 - 1)-reduced form. The definitions of the c-kernel and solutions for this game are given in the sense of Neuman and Morgenstern. It is assumed that the c-kernel of the game is not empty and that only coalitions of two players are significant. All solutions are constructed for this class of games. They consist of c-kernels and the continuous one-dimensional "additives" departing from them.

G. Tkachenko

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USSR

DUBOVITSKAYA, R. K., KULAKOVSKAYA, V. P., ROMANOVSKAYA, L. N., SAVCHENKO, T. A.,
STOLYAROV, G. K., FEDOROV, A. T., FEL'DMAN, L. S.

Sistema Avtomaticheskoy Obrabotki Dанных na Baze Yazyka KOMOL (Automated Data
Processing System Based on COBOL), Moscow, Statistika Press, 1971, 280 pp

Translation of Foreword [pp 3-4]: In the improvement of the efficiency of national production, the most important role belongs to further introduction of computers into the sphere of economics. Progress in this area is determined to a great extent by the presence of automatic data processing systems for economics information based on algorithmic languages available to a broad circle of people dealing in the given area.

The automatic data processing system described in this book for the Minsk-22M computer (SAOD) is based on a Russian version of COBOL (Common Business Oriented Language), the business information processing language which is widespread abroad. The given system was developed at the Minsk design office of the plant imeni S. Ordzhonikidze with the participation of the mathematics institute of the Belorussian SSR Academy of Sciences, and it is the first system using COBOL for series-produced Soviet computers in the development of the language and translator of the system the materials from the working group of algorithmic economic data processing languages (GAVUPEI) of the Commission on Multiracecd
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DUBOVITSKAYA, R. K., et al., Sistema Avtomaticheskoy Obrabotki Dannikh na Baze Yazyka KOBOL, Moscow, Statistika Press, 1971, 280 pp

Cooperation of the Academies of Sciences of the Socialist Countries were used. The book is devoted to a description of the SAOD system and its components from the point of view of the user. The system consists of writing the program in the initial language, preparing the programs and data for computer input, translation and checkout of the working program during computations by the finished working program and also during special system servicing procedures.

Accordingly, the book contains information required by programmers and computer operators, a description of the equipment for preparing the data, and data required by people responsible for organizing the operation of the SAOD system as a whole. In addition, the book can be useful to developers of programming and data processing systems. It is assumed that the reader is acquainted with the principles of automatic programming and the application of computers in data processing problems.

When using the book as a practical guide, the reader should also be acquainted with the following materials on the software system for the Minsk-22 computer:

1. Software for the Minsk-2 (22) computer in the T mode. No 1. Standard
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DUBOVITSKAYA, R. K., et al., Sistema Avtomaticheskoy Obrabotki Dannyykh na Baze Yazyka KOBOL, Moscow, Statistika Press, 1971, 280 pp

Programs Library. Minsk, Mathematics Institute of the Belorussian SSR Academy of Sciences, 1968.

2. Software of the Minsk-2 (22) computer in the T mode. No 3. Symbolic coding system. Minsk. Mathematics Institute of the Belorussian SSR Academy of Sciences, 1969.

The authors consider it necessary to note that the success in using SAOD, just as any modern automatic data processing system, depends to a great extent on the clarity of organization of the operations with respect to its utilization within the framework of the general enterprise control system.

In addition to the authors, the following people participated in the development of the system at various stages: V. I. Gorbatshevich, M. L. Gruzdova, V. A. Doroshek, L. A. Kozyabo, M. Ye. Nemennan, L. I. Panchina, V. N. Pionov, M. S. Presman, V. M. Skripnikova, et al.

The authors express their sincere appreciation to all who were of assistance in preparing this paper for publication, and they will be grateful to the readers and users of the SAOD system for comments, remarks, and suggestions.

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USSR

UDC 537.591.15

VERNOV, S. N., Y'EGOROV, T. A., Y'EFIMOV, N. N., KOLOSOV, V. A., KORYAKIN,
V. D., KRASIL'NIKOV, D. D., KUZ'MIN, A. I., KULAKOVSKIY, V. N., MAKSYMOV,
S. V., NESTEROVA, N. M., NIKOL'SKIY, S. I., ORLOV, V. A., SLEPYMOV, I. YE.,
SIZOV, V. V., KHRIстиАНSEN, G. B., and SHANСUTDINOVA, F. K.

"Preliminary Results of Recording Extensive Showers on a Recording Array in
Yakutsk"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10,
Oct 71, pp 2098-2101

Abstract: Experiments are described in which attempts were made at determining the energy spectrum, composition, and anisotropy of cosmic rays within the range of energy 10^{17} to 10^{18} ev. It is desired to extend the range to cover 10^{19} ev and above. Of a particular interest are the following problems: do the rays originate within the Galaxy or in intergalactic regions, what is the direction from which they arrive, and how Cerenkov radiation produced by them is distributed within the atmosphere. The test equipment consists of 13 recording points distributed over an area of 3 km², with a central time control point. The output spectrum was measured over a period of 29.5 hours. 82 showers were noted during that period, with the axes falling within the

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VERNOM, S. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,
Vol 35, No 10, Oct 71, pp 2098-2101

array area. The orientation of the axis was found by the "triangulation" method, comparing the time of arrival of the showers at different recording points. An analytic expression is given in the paper for the integral output spectrum of extensive showers at sea level for the interval of N between 2×10^7 and 2×10^8 . The intensity, determined with this formula, appears to be 2 to 3 times as great as recorded elsewhere. Distribution of Cerenkov light with respect to the shower axis was determined by observations conducted on clear, moonless nights. It was found to be similar to that of the primary gamma quanta, but it decayed with the distance from the axis more slowly than the amount of charged particles ($R^{-2.5}$ as against $R^{-3.3}$ for charged particles).

Examination of the energy spectrum of primary particles lead to the conclusion that the electromagnetic component is responsible for 80% of it. Dependence of primary energy on the output N was established, and on the basis of this relation the integral spectrum was computed. The coefficient connecting these two magnitudes was found to be twice as high as the one previously accepted elsewhere.

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VERNOV, S. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,
Vol 35, No 10, Oct 71, pp 2098-2101.

In the final analysis, variation of Cerenkov light at the primary particle energy of 3.6×10^{16} ev and the output (intensity) of 1.5×10^7 particles at sea level is given, as well as the expected distribution of the nuclear components of primary rays.

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USSR

UDC: 669.15.018.29:539.589.2:536.4.

(2)

IL'IN, V. P., PADUN, A. N., ANIKAYEV, V. A., URSHANSKIY, A. M., KULALAYEV,
Yu. A., SABKO, V. F.

"Study of Thermal Stability of Certain Wear-Resistant Metals"

Progressiv. Sposoby Svarki, Novyye Materialy i Konstruktsii v Svaroch. Proiz-ve
[Progressive Methods of Welding, New Materials and Structures in Welding Pro-
duction -- Collection of Works], Izhevsk, 1973, pp 54-55 (Translated from
Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 81509, by V.
Bochkareva).

Translation: The thermal stability of two groups of wear-resistant steels was studied. In group I, the C content varied from 0.16 to 0.89%, while the content of the other elements remained constant as follows (in %): Cr 4.0, W 1.0, V 1.0, Mo 10.0. In the steels of group II, the content of C varied from 0.4 to 1.0%, the content of Cr from 5.0 to 10.0%, with the contents of the other elements (in %): Mn 0.35, Si 0.65, W 10.0, V 0.8, Mo 1.4, Ti 0.5. A regression equation is produced to estimate the influence of C and Cr content and tempering temperature on thermal stability of steels of group II. Analysis of this equation shows that within the limits studied, C significantly

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Il'in, V. P., Padun, A. N., Anikayev, V. A., Urshanskiy, A. M., Kulalayev, Yu. A., Sabko, V. F., Progressiv. Sposoby Svarki, Novyye Materialy i Konstruktsii v Svaroch. Proiz-ve, Izhevsk, 1973, pp 54-55.

reduces, Cr increases the resistance to thermal cracking. The combined influence of C and tempering temperature greatly decreases the thermal stability of group II steels. For the steels of group I, it was established that hardness in the state after casting is increased with increasing C content, while resistance to formation of hot cracks decreases.

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Epidemiology

USSR

UDC 614.449.57:595.771

KULANIN, V. L., Railway Epidemiological Station, Station 5, Samarkand,
~~Central Asian Railway~~

"Breeding of Culex pipiens Mosquitos in the Basement of an Apartment House,
and Attempts at Control"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41,
No 1, Jan/Feb 72, p 115

Abstract: Culex pipiens larvae and pupae at densities of up to $3,000/m^2$ were discovered in the flooded basement of an apartment house. Accessible basement surfaces and staircase landings were treated with a 15% emulsion of BHC at $2\text{ gm}/m^2$ (active ingredient), but mosquitos began to increase in number 1-1/2 months later. Reflooding resulted in repopulation by larvae and pupae at up to $2,000/m^2$. Fumigation with an NBK (G-17) smokepot reduced adult mosquito density in the apartment house by 10-fold in 1 day, but 7 days later all instars and pupae were detected ($77/m^2$). Such problems can be avoided through proper construction that prevents flooding.

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USSR

UDC 614.449.57:576.895.771.093.6:621.647.26

KULANIN, V. L.

"Breeding Places of the Mosquitoes *Culex pipiens* L. and *Allotheobaldia longiareolata* Macq. in Shower Rooms in a Hot Climate"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolzni, No 5, 1971,
pp 622-623

Abstract: People living in a hot climate often rig up shower rooms in their yards, with tanks or barrels with water placed overhead. Whether closed or open, these containers serve as breeding places for *C. pipiens* and *A. longiareolata*. The conditions are most favorable for larval development when such shower installations are situated in the shade of tall trees. Mosquito larvae and pupae are often found in large outdoor containers exposed all day to the sun's rays. The larvae settle in the shower rooms from the latter part of May to early June and remain until the cold weather in the fall, when outdoor showers are no longer taken. To prevent the breeding of mosquitoes in the tanks or barrels, it is recommended that they be kept tightly covered and painted on the inside and outside once a year.

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1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--LOCALIZATION AND STATES OF POLYPHOSPHATES AND POLYPHOSPHATASES IN
FUNGAL CELLS -U-
AUTHOR-(03)-KULAYEV, I.S., KRASHENINNIKOV, I.A., AFANASYEVA, T.P.

COUNTRY OF INFO--USSR *K*

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1238-40

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FUNGUS, PHOSPHATE, ENZYME ACTIVITY, METABOLISM, CELL
PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1527

STEP NO--UR/0020/10/190/005/1238/1240

CIRC ACCESSION NO--A10128922

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0128922

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC CURVES WERE SHOWN FOR THE P COMPODS. IN CULTURES OF NEUROSPORA CRASSA AT 0-4 DEGREES. ORTHOPHOSPHATE ROSE STEADILY WITH TIME IN THE CULTURE, FOLLOWING A SHORT INDUCTION PERIOD, WHILE ACID SOL. POLYPHOSPHATES DECLINED IN A MIRROR IMAGE CURVE. ACID INSOL. POLYPHOSPHATES DECLINED SLIGHTLY ONLY NEAR THE END OF THE EXPTL. PERIOD OF 2 HR. SUGAR PHOSPHATES AND PHOSPHOLIPIDS WERE UNCHANGED. IN A SIMILAR EXAMN. OF N. MAGNUSII, ORTHOPHOSPHATE SHOWED A MODERATE DECLINE INITIALLY, FOLLOWED BY A RAPID INCREASE AS ABOVE, WHILE ACID SOL. POLYPHOSPHATES GAVE A MIRROR IMAGE CURVE. SALT SOL. POLYPHOSPHATES DECLINED TO A STEADY LEVEL AFTER APPROX. 40 MIN, WHILE POLYPHOSPHATES EXTD. WITH HClO SUB4 OR ALKALI DECLINED STEADILY AND RAPIDLY WITH TIME. WITHIN 40-60 SEC OF DESTRUCTION OF N. CRASSA CELLS AT 0-2 DEGREES THE MOST POLYMD. ACID INSOL. POLYPHOSPHATES DECLINED SHARPLY WHILE THE ACID SOL. FRACTION INCREASED IN A MIRROR IMAGE FANNER.

EVIDENTLY WHEN THE CELLS ARE DESTROYED, THE DEPOLYING POLYPHOSPHATASES BEGIN TO FUNCTION ACTIVELY AND FRAGMENT THE LARGER POLYPHOSPHATES TO ACID SOL., SMALLER UNITS AND BYPASS THE SALT SOL. FRACTION STAGE.

FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 629.12:532

KULAYEV, M. G., FARBEROV, Ya. F.

"Experimental Study and Approximate Method of Calculating the Lateral Force Acting on a V-Shaped Hydrofoil During Motion With Drift"

V sb. Vopr. resh. sudestr. (Problems of Riverboat Construction--collection of works), Gor'kiy, 1971, pp 187-214 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7F495)

Translation: The paper gives a brief description of an experimental installation for testing a V-shaped hydrofoil of planosegmental profile in an experimental tank; experimental data are given on pulling the foil through the tank at a Froude number of 9 along the chord. These data are given in the form of graphs showing the drag, lift, and coefficient of lateral force as functions of the angle of attack, drift, and relative submersion of the foil. On the basis of an analysis of the resultant data and some considerations typical of the theory of a wing of finite span, an approximate method is worked out for calculating the coefficient of lateral force acting on the foil at low angles of drift from the known relation for lift as a function of angle of attack and relative submersion of the foil at zero drift angle. L. M. Dykhta.

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Acc. Nr: APO038059

Ref. Code: UR 0326

PRIMARY SOURCE: Fiziologiya Rasteniy, 1970, Vol 17, Nr 1,
pp 14-22**EFFECT OF COUMARIN AND SYNTHETIC GROWTH RETARDANTS
ON CHLOROPHYLL AND PROTEIN CONTENT IN LEAF DISKS**

Knip1, Ya. S.; Kulayeva, O. N.

Department of Plant Physiology, Lodz University, Poland and N. A. Timiriazev
Institute of Plant Physiology, USSR Academy of Sciences, Moscow

The effect of coumarin, CCC, phosphon D, B-9 and AM(?)1618 on the chlorophyll and protein content in barley leaf disks was studied under conditions of cytokinin biotests in light and dark. In the dark coumarin, CCC and phosphon D were similar to cytokinins in inhibiting decrease of chlorophyll in the leaf disks. In these conditions CCC and phosphon D also slowed down decrease of the protein content. In contrast, in the light coumarin, CCC, phosphon D and B-9 accelerated chlorophyll and protein loss. Thus in the light modification of the biotest for cytokinins, the growth retardants effect is principally different from that of cytokinins. This indicates that the effect of retardants and cytokinins on metabolism of detached leaves in dark are probably different. Acceleration of protein and chlorophyll loss in illuminated leaf disks due to coumarin, CCC and phosphon D cannot be prevented by applying GA or BAP. Their action therefore cannot be

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regarded as an «antigibberelline» or «anticytokinin» action. Contrary of other retardants, the effect of B-9 is considerably weakened in the presence of BAP or GA. The effect of AMO-1618 on barley leaf disks was weak in the light as well as in darkness. The study shows that individual growth retardants affect differently the metabolism of leaves and that special investigations on the mechanism of action of each of the compounds are desirable.

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USSR

K UDC: 581.174

KULAYEVA, O.N. and ROMANKO, YE.G., Laboratory of Translocation of Substance
and Laboratory of Photosynthesis Institute of Plant Physiology, Academy of
Sciences USSR

"Inhibition of Cytokinin-Induced Stimulation of Protein Synthesis in Isolated
Chloroplasts Treated With Actinomycin D"

Leningrad, Tsitclogiya, No 2, 1970, pp 251-253

Abstract: Addition of 6-benzylaminopurine (0.1 mg/l) to a suspension of isolated chloroplasts from *Nicotiana rustica* leaves markedly stimulated the incorporation of C^{14} -leucine into chloroplasts protein. A specific inhibitor of RNA synthesis, actinomycin D, introduced into the medium in concentrations ranging from 0.1 to 33 mg/l, effectively neutralized the effect of 6-benzylaminopurine. This suggests that since cytokinin stimulates protein synthesis in isolated chloroplasts by activating RNA synthesis, the inhibition of protein synthesis by actinomycin D takes place at the same level. Another antibiotic, olivomycin (8 mg/l), had the same action. It did not affect protein synthesis in chloroplasts in the absence of cytokinin, but completely inhibited the process in its presence.

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1/2 014

UNCLASSIFIED

PROCESSING DATE--30 OCT 70

TITLE—INHIBITION OF THE CYTOKININ INDUCED PROTEIN SYNTHESIS IN ISOLATED CHLOROPLASTS TREATED WITH ACTINOMYCIN D -U-

AUTHOR—(02)—KULAYEVA, O.N., ROMANKO, YE.G.

COUNTRY OF INFO--USSR

K

SOURCE—TSITOLGIYA 1970, 12(2), 251-3

DATE PUBLISHED-----70

SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—PROTEIN SYNTHESIS, CHLOROPLAST, ANTIBIOTIC, LEUCINE, CARBON ISOTOPE, RNA, TAGGED ATOM/(U)OLIVOMYCIN ANTIBIOTIC, (U)ACTINOMYCIN D ANTIBIOTIC

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—3002/0420

STEP NO—UR/9053/70/012/002/0251/0253

CIRC ACCESSION NO—APO127991

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--30 OCT 70

CIRC ACCESSION NU--AP0127991

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 6-BENZYLAMINOPURINE (0.1 MG-1.)
ADDED TO ISOLATED CHLOROPLASTS OF NICOTIANA RUSTICA (TOBACCO) LEAVES
CONSIDERABLY STIMULATED THE INCORPORATION OF LEUCINE- PHME14 C INTO
PROTEIN OF ISOLATED CHLOROPLASTS. ACTINOMYCIN D (1-33 MG-1.) AND
OLIVOMYCIN (8 MG-1.) COMPLETELY INHIBITED THIS STIMULATION. THE RESULTS
OBTAINED SUGGEST THAT CYTOKININ MAY AFFECT PROTEIN SYNTHESIS VIA THE
ACTION ON RNA SYNTHESIS. FACILITY: LAB. SUBSTANCE MOVEMENT,
INST. PLANT PHYSIOL., MOSCOW, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--EFFECT OF COURMARIN AND SYNTHETIC GROWTH RETRODANTS ON RNA AND
PROTEIN SYNTHESIS IN DETACHED BARLEY LEAVES IN DARK AND LIGHT -U-
AUTHOR--(02)-KNIPL, YA.S., KULAYEVA, O.N.

COUNTRY OF INFO--USSR, POLAND

SOURCE--FIZIOLOGIYA RASTENIY, 1970, VOL 17, NR 3, PP 549-557

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PLANT GROWTH REGULATOR, PROTEIN SYNTHESIS, URACIL, RNA/(U)CCC
PLANT GROWTH REGULATOR, (U)PHOSPHON D PLANT GROWTH REGULATOR, (U)B9
PLANT GROWTH REGULATOR, (U)AMU1618 PLANT GROWTH REGULATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY KEEF/FRAME--1999/1147

STEP NO--UR7032671070177003700497057

CIRC ACCESSION NO--APO123130

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--23 OCT 70

CIRC ACCESSION NO--AP0123130

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF COUMARIN AND OF THE GROWTH RETARDANTS: CCC, PHOSPHON D, B-9 AND AMO 1618 ON INCORPORATION OF C PRIME¹⁴ LEUCINE INTO PROTEINS AND OF C PRIME¹⁴ URACIL INTO RNA OF BARLEY LEAF DISCS IN THE DARK AND LIGHT IS STUDIED. THE RETARDANT EFFECT IS COMPARED WITH THAT OF 6 BENZYLAMINOPURINE (BAPO). IN CONTRAST TO THE CYTOKININ COUMARIN, THE RETARDANTS CCC, PHOSPHON D AND B-9 INHIBITED INCORPORATION OF C PRIME¹⁴ LEUCINE INTO LEAF DISCS IN LIGHT AS WELL AS IN THE DARK. AMO 1618 WAS ONLY SLIGHTLY ACTIVE. SUPPRESSION OF PROTEIN SYNTHESIS BY COUMARIN AND THE SYNTHETIC GROWTH RETARDANTS OCCURRED WITHOUT THEIR APPRECIABLE INFLUENCE ON LABELLING OF RNA. SUPPRESSION OF PROTEIN SYNTHESIS BY COUMARIN AND THE GROWTH RETARDANTS IN THE DARK COULD BE OBSERVED AFTER 6 HOURS AND INCREASED WITH TIME. THUS THE DELAY OF CHLOROPHYLL DECREASE IN DARKENED BARLEY LEAVES PREVIOUSLY OBSERVED IN EXPERIMENTS WITH COUMARIN, CCC AND PHOSPHON D OCCURS WHEN PROTEIN SYNTHESIS IS SUPPRESSED AND DIFFERS PRINCIPALLY FROM THE DELAY OF YELLOWING OF DETACHED LEAVES AS A RESULT OF CYTOKININ TREATMENT WHICH STIMULATES PROTEIN SYNTHESIS. AFTER THE PERIOD OF PROTEIN SYNTHESIS INHIBITION IN DARKENED BARLEY LEAF DISCS CAUSED BY COUMARIN, CCC AND PHOSPHON D TREATMENT, A PERIOD OF ACTIVATION OCCURRED WHICH WAS ACCCOMPANIED BY STIMULATION OF RNA LABELLING. THE PHYSIOLOGICAL ESSENCE OF THIS STIMULATION IS NOT CLEAR.

UNCLASSIFIED

1/2 021

UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--INFRARED ABSORPTION SPECTRA OF 1,2,PROPYLENEDIAMINE COMPLEXES OF THALLIUM(III)-U-

AUTHOR--(64)-KULBA, F.YA., MAKASHEV, YU.A., MARKHAYEV, D.M., BARSUKOV,

A.V.

COUNTRY OF INFO--USSR

K

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 983-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, PROPYLENE, DIAMINE, THALLIUM COMPOUND, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1215

STEP NO--UR/0078/7D/015/004/0933/0987

CIRC ACCESSION NO--AP0123456

2/2 021

UNCLASSIFIED

PROCESSING DATE--13 NOV 70

CIRC ACCESSION NO--AP0128633

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRA OF TL(PN) SUBN X
SUB3 (WHERE PN EQUALS 1,2,PROPYLENEDIAMINE, N EQUALS 1, 2, OR 3, AND X
EQUALS CL, BR), TL(PN) SUB2 I SUB3, AND TL(PN) SUB3 (I+I SUB3) SUB3 WERE
DETD. AND ASSIGNMENT OF THEIR MAX. ARE GIVEN. SPECTRA OF (TL(PN) SUB3)
PRIME3 POSITIVE ARE VERY SIMILAR TO THE SPECTRA OF ZN(EN) SUB3 CL SUB2
AND CO(EN) SUB3 CL SUB2; IT IS ASSUMED THAT IN THESE COMPLEXES, PN HAS
THE GAUCHE CONFIGURATION. MONO AND BIS-PN COMPLEXES HAVE SIMPLER
SPECTRA Owing TO CHAINLIKE STRUCTURE WITH TRANS COORDINATED PN BRIDGES.

UNCLASSIFIED

USSR

UDC: 519.2

KOSYACHENKO, S. A., KUL'BA, V. V., TSVIRKUN, A. D.

"Analysis of Strategies of Organizing Computer Data Processing
in the Presence of Random Malfunctions"

Sb. tr. In-t probil. upr. (Collected Works. Institute of Con-
trol Problems), 1972, vyp. 2, pp 82-86 (from RZh-Kibernetika,
No 5, May 73, abstract № SV274 by the authors)

Translation: Estimates are given of some strategies of orga-
nizing computer calculation with consideration of the presence
of random malfunctions and operator errors. For each of the
calculation strategies considered, estimates of the mathematical
expectation are derived for the total time of solving the
problem with and without separation into distinct stages, and
expressions are found for determining the optimum number of
stages to minimize the mathematical expectation of the overall
time of calculation.

Solution of this problem is important for effective plan-
ning of the computational process in automated information

1/2

USSR

KOSYACHENKO, S. A. et al., Sb. tr. In-t probl. upr., 1972, vyp. 2, pp. 82-86 (from RZh-Kibernetika, No 5, May 75, abstract No 5V274)

systems characterized by distinct separation of physical and time resources for each of the problems which comprise the system.

2/2

Computers: Digital

USSR

KUL'BAK, L. I. and REZNICHENKO, V. M.

AN INFORMATION RETRIEVAL DEVICE

Moscow OTKRYTIYA IZOBRAZHENIYA PROMYSHLENNYYE OBRAZTSY TOVARNYYE ZNAKI
in Russian No 2, 15 Jan 74 pp 151-152

Abstract (11) 411459 (21) 1658247/18-24 (22) 20.05.71 (51) G 06f 15/40
(53) 681.327(47) (72) (54) A device for information retrieval containing
shapers for the desired and current frame signals, the input to the first of
which is connected to the input of the device; an information carrier transfer
control unit, the output of which is connected to the input of the film unit;
a time analyzer; and converter is distinguished by the fact that the accuracy
of frame positioning is improved and the device is simplified by connecting
the output of the desired frame signal shaper to the first input of the time
analyzer, the second input of which is connected to the output of a converter
whose input is connected to the output of the current frame signal shaper,
the first input of which is connected with the second output of the desired
frame signal shaper, while its second input is connected to the output of the
film unit; the output of the time analyzer is connected to the input of the
information carrier transfer control unit.

1/1

USSR

UDC 669.296'704.016.28:539.531:669-977

SAVITSKIY, YE. N., KUL'BAKH, A. A., and YEVSTYUKHIN, N. A.

"Study of Hot Hardness of Cast Zirconium Carbides"

V. sb. Tugoplavk. karbidy (The Refractory Carbides -- Collection of Works), Kiev, "Nauk. Dumka," 1970, pp 211-214 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 31780 by authors)

Translation: The article presents data on hot-hardness measurements of cast specimens of Zr carbide with a porosity approximating zero and density close to theoretical. Hardness measurements by the static method were carried out in the 900-1650° range. Softening of Zr carbide (cast and hot-pressed) is observed with an increase in temperature. Three illustrations. Bibliography with three titles.

1/1

- 16 -

Analysis and Testing

USSR

UDC 620.175

MILOSERDIN, Yu. V., KUL'BAKH, A. A., CHECHKO, V. N., and SEMENOV, B. D., Moscow

"Method of Performing Cyclical Elastic-Plastic Tests of Refractory Materials
by Twisting at Normal and High Temperatures"

Kiev, Problemy Prochnosti, No 12, Dec 70, pp 51-57

Abstract: This work deals with problems of the low-cycle testing of refractory materials by torsion. A method is described and two installations are studied which perform repeated tests automatically at normal and elevated temperatures. The results are presented from the deformation and molybdenum at temperatures in the 293-1600°K range.

1/1

USSR

UDC 576.851.49(Shigella).097.2.098

OSIPOVA, L. V.; KUL'BERG, A. Ya.; Institute of Petrochemical
Synthesis, Academy of Sciences; Institute of Epidemiology and
Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences
USSR

"Production of Poly-D-Phenylalanine Conjugates With Bacterial
Antigens"

Moscow, Voprosy Meditsinskoy Khimii, Vol 17, No 5, Sep/Oct 71,
pp 472-475

Abstract: A protein-lipopolysaccharide complex of *Shigella flexneri* (O-antigen) was conjugated with poly-D-phenylalanine through N-carboxyanhydride of the amino acids. The water-insoluble precipitate was analyzed for the presence of O-antigen as judged from the reducing sugar content as well as from a decrease in the amount of O-antigen in supernatant fluid. The test demonstrated that water-insoluble conjugate of O-antigen with poly-D-phenylalanine specifically adsorbs *Shigella flexneri*

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USSR

OSIPOVA, L. V., et al, Voprosy Meditsinskoy Khimii, Vol 17,
No 5, Sep / Oct 71, pp 472-475

antibodies. The data from this experiment agree with the author's earlier experiments (1969) analyzing the antigenic properties of water-insoluble protein conjugates (ox gamma globulin conjugated with poly-L-and-D-phenylalanine), which also demonstrated retention of the antigenic structure of a conjugated protein.

2/2

Acc. Nr.: APO030994

K
Ref. Code: UR 0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i
Meditiny, 1970, Vol 69, Nr 1, pp 64-67

CERTAIN IMMUNOCHEMICAL PROPERTIES OF COLD HAEMAGGLUTININS
IN THE RABBIT

Mesropyan, N.P.; Kul'berg, A.Ya.

Institute of Epidemiology and Microbiology, Academy of Medical Sciences of the USSR,
Moscow

Certain immunochemical properties of cold haemagglutinins (HC) obtained after multiple intravenous immunization of rabbits by stroma of sheep erythrocytes. CH were removed from serum by adsorption on stroma at 0° with its subsequent elution at 37°. Purified HC have haemagglutination reaction with sheep erythrocytes and bound specifically the complement at low temperature. It was found that HC contained antibodies

MK

REEL/FRAME

19691020

2

USSR

UDC 576.858.095.38.095.13:(615.373.6:457.962

KUL'BERG, A. Ya., PRIYMYAGI, L. S., BARTOVA, L. M., SHMELEVA, N. Ye., and FADEYEVA, L. L., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Tallin Institute of Epidemiology, Microbiology, and Hygiene, Ministry of Health, Estonian SSR, and Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"Study of the Interferon-Inducing Activity of Gamma Globulin and Its Fat^{1/2} Fragment"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 11, 1972, pp 63-66

Abstract: Human gamma globulin in aggregated form is capable of inducing interferon in mice. Its interferonogenic activity is higher than that of the fraction free of aggregates or that of the original gamma globulin. The difference is even more pronounced when it is heated to 63°C. The aggregate-free fraction has virtually no interferonogenic activity, whereas that of the aggregated fraction fraction is 3 to 4 orders higher than that of crude gamma globulin. To evaluate the species specificity of the proteins, the interferonogenic activity of highly purified preparations of lapine and bovine gamma globulins was investigated in experiments on rabbits. Both induced interferon but heterologous gamma globulin was more active than homologous globulin. The fat^{1/2} fragment of gamma globulin, which constitutes only one-third of the molecule,

USSR

KUL'BERG, A. YA., Byulleten' Eksperimental'noy Biologii i Meditsiny, No 11,
1972, pp 63-66

induced as much interferon as the unsplit molecule. The authors conclude that
the interferon-inducing activity is caused by the gamma globulin proper and
not by any admixtures that it may contain such as viruses or polysaccharides.

2/2

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I/2 009

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--PHOTOCHEMICAL DESULFURIZATION OF AROMATIC SULFONIC ACIDS -U-

AUTHOR-(05)-YELTSOV, A.V., STUDZINSKIY, O.P., KULBITSKAYA, O.V.,
OGOLTSOVA, N.V., EFROS, L.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(3), 638-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NAPHTHALENE, AMINE DERIVATIVE, QUINONE, SULFONIC ACID, ORGANIC
SULFUR COMPOUND, DESULFURIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1657

STEP NO--UR/0366/T0/006/J03/0638/0639

CIRC ACCESSION NU--AP0112651

UNCLASSIFIED

2i2 009

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112651
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IRRADN. OF NA
1,NAPHTHALENESULFONATE IN AQ. SOLN. AT PH 1-13 GAVE NAPHTHALENE.
SIMILARLY, ALPHA AMINO NAPHTHALENE WAS OBTAINED BY THE PHOTOLYTIC
DESULFONATION OF NA 4,AMINO,L,NAPHTHALENESULFONATE IN THE 7-13 PH RANGE.
THE DESULFONATION OF ALPHA ANTHAQUINONESULFONIC ACID IN WATER GAVE
ANTHRAQUINONE, BUT IN OIL. AMMONIA SOLN. ALPHA AMINANTHRAQUINONE WAS
FORMED. THE DESULFONATION OF O, P, OR M,H SUB2 NC SUB6 H SUB4 SD SUB3 H
GAVE, RESP., TRACES, 7, AND 40-50PERCENT PNH SUB2. FACILITY:
LENINGRAD. TEKHNL. INST. IN LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 613.2-099.-22.7 (Bac. cereus)

BULYGA, M. S., KUL'CHINSKAYA, I. I., and DOMANSKAYA, Ye. D., Volynskaya Oblast Sanitary-Epidemiological Station, Lutsk

"Food Poisoning Caused by Bac. cereus"

Moscow, Voprosy Pitaniya, No 1, 1973, pp 86-87

Abstract: Within 1 to 6 hours after eating ice cream, a group of school children became sick, with symptoms including headache, abdominal pain, nausea, vomiting, diarrhea, but not elevated temperature. Bac. cereus but no other microorganism known to cause acute intestinal disease was isolated from suspected food, stomach contents, washings from implements, etc. An investigation of the place where the ice cream was made revealed that the ingredients had not been properly heated and that the mixture was not cooled according to regulations. In addition, general sanitary regulations had not been followed.

1/1

USSR

UDC: 539.311

LUTSYSHIN, R. M., KUL'CHITSKIY, L. O., Drogobych

"Bending of a Strip with a Curved Crack"

Kiev, Prikladnaya Mekhanika, Vol 18, No 8, Aug 73, pp 76-82.

Abstract: The stress-strain state of a strip (beam) with an "overlapping" crack in the form of a circular arc is studied. The strip is loaded by distributed forces and bending moments at the ends, the friction between the edges of the crack is not considered. Conditions are produced for determination of critical loads. As an illustration, the distribution curves of stresses along the circle of the crack are presented.

1/1

- 97 -

Acc. Nr:

AP0049764

Abstracting Service:
CHEMICAL ABST. 5-70

Ref. Code:

480458

K

101690s Treatment of polyamide synthetic leather with glycerol. Bublik, I. M.; Kul'chitskii, S. I.; Turte, L. S.; Shnigelman, R. A.; Tumarkina, I. D. (Boris). Koch. Obav. Prom. 1970, 12(1), 51-4 (Russ). Artificial leather is made by sntg. non-woven, stitched cloth with a polyamide soln. After hardening, the rigid semi-product is immersed in a glycerol (I) bath to soften it. An increase of I concn. of $\leq 40\%$ increased the amt. of I absorbed by leather. A further increase in I concn. is undesirable, since it remains on the surface. The bath temp. has no effect on the I absorption. The optimum conditions are 20° and 40% I concn.; the excess I is squeezed out by rollers.

CP/R

jk

REEL/FRAME
19801682

7

MATHEMATICS

Differential & Integral Equations

USSR

UDC 517.544.31517.947.431517.947.3

MITROPOL'SKIY, YU. A. and KUL'CHITSKIY, V. L., Institute of Mathematics,
Academy of Sciences, Ukrainian SSR

"On Asymptotic Integration of a Nonlinear Mixed Boundary Value Problem With
Partial Derivatives"

Kiev, Ukrainskiy Matematicheskiy Zhurnal, Vol 23, No 4, 1971, pp 543-547

Abstract: The problem to be solved is a nonlinear mixed boundary value problem in three-dimensional space with partial derivatives and nonstationary boundary conditions on part of the bounding surface. This problem is reduced to a Cauchy boundary value problem for an ordinary first-order differential equation with positive unbounded operator coefficients, and this problem is considered in an orthogonal sum of Hilbert spaces. A formula which is asymptotic with respect to the small parameter and which is uniform with respect to the small parameter and which is uniform with respect to t in the interval $[0, T]$ is obtained with the aid of a Taylor series expansion. This formula is the solution to the Cauchy problem, and in a generalized sense $1/2$

USSR

MITROPOL'SKIY, YU. A., and KUL'CHITSKIY, V. L., Ukrainskiy Matematicheskiy
Zhurnal, Vol 23, No 4, 1971, pp 543-547

(in the sense of a scalar product) it also satisfies the original problem.
Under certain conditions, this asymptotic formula will be a classic solution
of the original problem.

2/2

USSR

UDC:

ZASHKVARA, V. V., KORSUNSKIY, M. I., LAREK, M. P., RED'KIN, V. S., MASYAGIN, V. YE.,
~~KULUDIYAROV, M. A.~~, and CHOKIN, K. SH., Institute of Nuclear Physics of the Kazakh
Academy of Sciences, Alma-Ata (Institut yadernoy fiziki AN Kaz SSR, Alma-Ata)

"Spectrum of Characteristic Energy Losses of Electrons in Osmium"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 1, January 1970, pp 274-295

Abstract: The authors obtained a spectrum of characteristic energy losses of electrons in osmium. This is the first time this has been done and should contribute information about the third transition metal group. The spectrum was produced by reflecting an electron beam with an energy of 0.6-1.4 kev off a flat surface of a massive specimen. Energy analysis of the scattered electrons was carried out by using an electrostatic beta-spectrometer with a cylindrical field. The resolving power of the spectrometer was 0.2%. The spectrum was obtained for two different angles of scattering for the primary beam of electrons. In the first case the beam of primary electrons falls normally to the specimen surface and electrons which had been scattered at a 141° angle in the specimen enter the beta-spectrometer. In the second case the angle between the direction of the primary beam and the specimen surface is 190.30° with electrons analyzed which had been scattered at 39°. The osmium specimen was 0.3 mm thick and was made from low-dispersion powdered osmium pressed and subsequently sintered above 2000°C in a $2 \cdot 10^{-6}$ torr vacuum for several hours. The spectrum was produced without disturbing the vacuum

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USSR

ZASHKVARA, V. V., et al., Fizika Tverdogo Tela, Vol 12, No 1, January 1970, pp 294-296

at the above temperature, with registration of electrons scattered at a 39° angle. It was shown that the osmium spectrum did not change with a fall in temperature down to 1400°C . The position of the specimen was changed for taking a spectrum at an angle of 141° . This required disturbing the vacuum. The latter spectrum was produced at a specimen temperature of 1700°C in a $2 \cdot 10^{-6}$ torr vacuum. A graph is given for the two spectra. Energy losses in electron-volts as determined from curve peaks are as follows: (141° angle of scattering) 11.4, 29.8, 45.5, 58; and (39° angle of scattering) 11.3, 24.5, 45.2, 57.4. The energy position of the first loss does not change with the angle of scattering. The ratio of the height of the first peak to the height of the second loss peak decreases as the angle of scattering increases and with increased primary beam energy. At a specimen temperature below 1300°C , the height of the first loss peak falls significantly and reaches 9.7 ev. This may be interpreted as energy lost in exciting surface plasma oscillation. At the same time, the energy loss does not coincide with theory. A significant discrepancy (on the order of 5 ev) exists in the energy position of the second loss peak. This is probably conditioned by excitation of volume plasma oscillation in the osmium for 141° and 39° scattering angles. Energy calculated for

2/3

- 57 -

USSR

ZASHKVARA, V. V., et al., Fizika Tverdogo Tela, Vol 12, No 1, January 1970, pp 294-296

a volumetric plasmon using the Langmuir formula with the supposition that all eight s and d are free and form a homogeneous electron gas yields 28.6 ev. This value does not correspond to the second peak energy position obtained in this study. The origins of the remaining peaks in the osmium spectrum are also unclear.

3/3

I/2 027

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--DEGASSING DURING FRICTION IN VACUUM -U-

AUTHOR-(04)-GUSLIAKOV, A.A., ASHUKIN, A.V., KULEBA, V.I., LYUBARSKIY, I.M.

COUNTRY OF INFO--LSSR

SOURCE--FIZIKO-KHIMICHESKAIA MEKHANIKA MATERIALOV, VOL. 6, ND. 1, 1970, P.
106, 107

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--FRICTION, OXIDE FILM, METAL DEGASSING, VACUUM DEGASSING,
BIBLIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0933

STEP NO--UR/0369/70/0C6/001/0106/0107

CIRC ACCESSION NO--APO115442

UNCLASSIFIED

2/2 027
CIRC ACCESSION NO--AP0116442

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE KINETICS OF DEGASSING DURING DRY FRICTION IN VACUUM. THREE STAGES OF GAS SEPARATION WERE DISTINGUISHED, TWO OF WHICH CORRESPOND TO THE WORK IN PROCESS, WHILE THE THIRD CORRESPONDS TO STEADY STATE FRICTION. ON THE BASIS OF HYDROGEN DEGASSING DURING FRICTION, IT IS SUGGESTED THAT THESE STAGES CORRESPOND TO INITIAL BREAKDOWN OF THE OXIDE FILM, ITS ELIMINATION, AND FRICTION OF PURE SURFACES, RESPECTIVELY. FACILITY: AKADEMIA NAUK UKRAINSKOI SSR. FACILITY: FIZIKO-TEKHNICHESKII INSTITUT NIZKIKH TEMPERATUR, KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED

AP0028604

PRIMARY SOURCE: FBIS Daily Report, Soviet Union, 12 February 1970, Vol III,
Nr 30, p D 4 US0000

USSR

Academician Kulebakin

Moscow TASS International Service in English 0940 GMT 12 Jan 70 E

[Text] Moscow, February 12. TASS--The outstanding Soviet scientist, Academician Viktor Kulebakin, died here yesterday at the age of 78, PRAVDA writes today. He was a specialist in power engineering, automation and control.

Viktor Kulebakin is a graduate of the Moscow Higher Technical School. For more than 50 years he was working on the theory and methods of designing electrical machines and apparatuses, on the problems of automated regulation. Academician Kulebakin's works on the electrification of planes started the national aviation electrical engineering. He is the author of many scientific papers and text-books. Viktor Kulebakin is a laureate of the USSR State Prize, the Prize of Yablochkov (name after the Russian inventor), [as received] a merited Worker in science and technology.

19680005

4

BIOLOGY
Biochemistry

USSR

UDC 577.12

KULENE, V. V., SKULACHEV, V. P., and YASAYTIS, A. A., Division of Biocenergetics Laboratory of Bioorganic Chemistry, Moscow State University imeni M. V. Lomonosov

"Demonstration of Membrane Potential in Mitochondria by Means of Changes in the Fluorescence of Anilinenaphthalene Sulfonate"

Moscow, Biokhimiya, Vol 36, No 3, May/Jun 71, pp 649-652

Abstract: After addition of 1-aniline-8-naphthalene sulfonate (ionized ANS⁻) to a suspension of mitochondria or subalochondrial particles (SMP), characteristic changes occur in ANS⁻ fluorescence when electrical membrane potentials are generated nonenzymatically (addition of cyanide) due to a transmembrane shift of K⁺ in the presence of valinomycin or due to a similar shift of H⁺ in the presence of an uncoupler-protonophore. ANS⁻ is fluorescent when it is present in the membrane of mitochondria or SMP. When, on the other hand, ANS⁻ leaves the organelles and becomes very diluted in the surrounding "ocean" of the bathing solution, its concentration in the membrane falls, and fluorescence decreases. If the nonenzymatically produced transmembrane potential is negative inside the mitochondrion or SMP, fluorescence decreases, because ANS⁻ is leaving the structure simultaneously with the effluxing K⁺ or H⁺ ions.

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USSR

KULENE, V. V., et al., Biokhimiya, Vol 36, No 3, May/Jun 71, pp 649-652

And vice versa, if the nonenzymatically produced potential is positive inside, fluorescence increases, because ANS⁻ is entering the structure simultaneously with the influxing positive ions. During an enzymatically generated trans-membrane potential (respiration and ATP hydrolysis), ANS⁻ fluorescence decreases, indicating that the electrical charges are negative inside and positive outside the mitochondrial membrane. Thus, recording changes in the fluorescence of ANS⁻ constitutes a sensitive method of determining differences in mitochondrial membrane electrical potentials.

2/2

- 1 -

USSR

UDC 539.3+534.231.1

KULENKO, N. P., SEYMOV, V. M.

"Steady-State Antisymmetric Oscillations of a Belt of Finite Rigidity on
an Elastic Half-Plane"

Tr. koordinats. sovesch. po gidrotekhn. (Works of the Coordination Conference
on Hydraulic Engineering), 1972, No. 64, pp 69-76 (from RZh-Mekhanika, No 3,
Mar 73, Abstract No 3V87)

Translation: The problem of periodic fluctuations of an elastic band of finite
length on an elastic half-plane under the action of antisymmetric loads is
considered. Normal reactions along the contact, bending of the band, angles of
twist, bending moments, intersecting forces, resonance frequencies, and displace-
ments of the boundaries of the half-plane corresponding to waves propagating
from the band are sought. The solution for normal reactions along the contact
is sought in the form of a series in terms of Chebyshev polynomials with com-
plex indeterminate coefficients. The problem is solved by the integral Fourier
transformation method. 5 ref. Authors' abstract.

1/1

- 42 -

USSR

UDC 659.713.72

KULESH, M., K.M DIMITRIYEV, A. A., and VOLODCHENKO, V. O.

"Effect of the Height of the Electrolyte Layer on the Process of Aluminum Electrolysis"

Moscow, Tsvetnyye Metally, No 9, Sep 70, pp 23-24

Abstract: The effect of the height of the electrolyte layer on its gas content, electric resistance of the electrolyzer, and the quality of the anode has been studied. In industrial electrolyzers the height of the electrolyte layer varies from 16 to 24 cm. In some foreign plants the depth of anode penetration in the electrolyte is well below that used in Soviet plants, and the appropriate volume of the electrolyte is maintained through a greater distance from the anode to the edge of the electrolyte. This study was performed on 120 heavy-duty industrial electrolyzers. The data show that the specific gas content of the electrolyte increases with the depth of anode penetration: the wider the anode, the more intensive the changes in the gas content of the electrolyte as a function of its height above the anode base. It is shown that with an increase in the depth of anode penetration,

1/2

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USSR

KULESH, M. K., et al., Tsvetnyye Metally, No 9, Sep 70, pp 23-24

of a standard electrolyzer from 5 to 15 cm drops the voltage by 112 mv. An increase in the anode-electrolyte contact surface through deeper penetration of its side faces in the melt may be responsible for it.

1/2

1/2 032

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--OPERATIONAL FEATURES OF HEAVY DUTY ALUMINUM ELECTROLYTIC CELLS WITH
VARIOUS ALUMINA FEED RATES -U-

AUTHOR--(03)-KULIKOV, YU.V., KULESH, M.K., POTYLITSYN, G.A.

COUNTRY OF INFO--USSR

K

SOURCE--TSVET. METAL. 1970, 43(3), 34-6

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ELECTROLYTE, ALUMINUM, ALUMINUM OXIDE, CHEMICAL REACTION RATE,
ELECTROLYTIC CELL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1901

STEP NO--UR/0136/70/0419003471036

CIRC ACCESSION NO--APO132163

UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132163
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THREE GROUPS OF CELLS USING A
SINGLE ELECTROLYTE COMPN. BUT WITH DIFFERENT METHODS AND AREAS OF
FEEDING THE AL SUB2 O SUB3 WERE STUDIED. A STUDY OF THE AL SUB2 O SUB3
CHARGING RATE (EVERY 4 HR (12 TIMES); EVERY 3 HR (16 TIMES); AND EVERY 2
HR (24 TIMES)) SHOWED THAT AT THE 3 HR RATE THE TEMP. OF THE ELECTROLYTE
WAS 1DEGREE LOWER THAN AT THE 4 HR RATE AS A RESULT OF DECREASED LOSS OF
THE CATHODIC METAL. IN THE CASE OF THE 2 HR RATE, THE TEMP. WAS
2DEGREES LOWER THAN THAT OF THE 3 HR RATE. THIS 2 HR FEED RATE WITH
COMBINED CRUST BREAKING AND AL SUB2 O SUB3 FEEDING IS NOT THE OPTIMUM,
BECAUSE MORE FREQUENT FEEDING DECREASES THE NO. OF ANODE EFFECTS AND
IMPROVES THE PROCESS. THE SELECTION OF THE FEED CYCLE DEPENDS ON THE
PURITY OF THE AL SUB2 O SUB3, ELECTROLYTE COMPN., CONDITION OF THE
ANODE, C.O., AND THE GEOMETRY OF THE CELL.

UNCLASSIFIED

AA0038362 Kuleshin, A.V.

UR 0482

1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

239034

DICARBOCYANINE OR OXANINE DYESTUFFS

useful as optical sensitizers for the light-sensitive silver-halide photographic materials are prepared by interaction of 2,6-dimethoxy-1,4-dihydrobenzene or its 4-substituted derivs with quaternary salts of nitrogen-containing heterocyclic bases having a reactive methyl group or with a nitrogen-containing heterocyclic cpd. having a ketomethylene group at 100-135° and subsequently refluxing with an aliphatic alcohol in the presence of a tertiary aliphatic amine. In an example, 0.7g of 2-methylbenzothiazole ethyl-tosylate and 0.18g of 3,5-dimethoxy-1,4-dihydrobenzoic acid were warmed without a solvent at 100-105° for 5 min. 3 ml. of absolute ethanol and 0.2g of triethylamine were added and the mixture was refluxed for 5 mins. on addition of

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an ethanolic NaI solution and crystallisation of the crude product from 50% ethanol with a little of ammonia 0.16 g (33%) of 3,3'-diethyl-9,11-buta-carboxytrimethylene/thiadicarbocyanine betain resulted green crystals m.pt. 147-148°.
30.10.67. as 1193875/23-4, TOLMACHEV, A.I. et al.
Organic Chemistry Inst. Acad. Sci. Ukrainian SSR. (31.7.69) Bul. 10/10.3.69. Class 57b 22a,
Int. Cl. G 03c, C 09b.

L.D

AUTHORS: Tolmachev, A. I.; Slominskiy, Yu. I.; Kuleshin, A. V.

Institut Organicheskoy Khimii AN Ukrainskoy SSR

2/2

19731497

USSR

UDC: 621.396.2

KULESHOV, A. V., KIKTEV, A. A.

"Errors in Transmission of Binary Information Over Ionospheric Communications Channels"

Sb. nauchn. tr. TsNII svyazi (Collected Scientific Works of the Central Scientific Research Institute of Communications), 1970, vyp. 2, pp 70-82
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A266)

Translation: The article contains a systematization of concepts which explain the physical side of causes which could be responsible for errors in ionospheric channels. An experimental ionospheric channel is described which was used for preliminary statistical studies. A method is proposed for making statistical measurements on ionospheric channels and the set of measuring equipment is briefly described. Resumé.

1/1

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USSR

UDC: 621.374.2

BRESLAVTSEV, I. D., VENIKOV, N. I., DVORNIKOV, V. D., KULESHOV,
I. L., LATUSHKIN, S. T., REZVOV, V. A., CHUMAKOV, N. I., and
YUDIN, L. I.

"Use of 'Deviation Grouping' to Obtain Intense Short Neutron Pulses in the IAE Cyclotron"

Moscow, Pribory i Tekhnika Eksperimenta, No 4, July-August 1972,
pp 26-31

Abstract: A system is described for the formation and diagnostics of a beam of neutrons using the method of deviation grouping. Similar to that of Karlsruhe, as described by S. Cierjacks et al (Rev. Scient. Instrum., 39, 1968, p 1279), the system involves a packet of ions cut by a pulsed voltage of an internal deflector and accelerated to the proper energy level. The ions are deflected vertically to a target whose thickness is larger than the ion path, and as a result of the impact of the particles on the target, short intense neutron pulses are obtained. A detector, recording the neutrons' energy spectrum, is placed at a distance of 13.5 m from the target. Unlike the Karlsruhe cyclotron, however, the IAE has two 180° duants, such that it is impossible to place all elements of the system in the space outside them. The setup 1/2

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UDC: 621.374.2

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BRESLAVTSEV, I. D., et al, Pribory i Tekhnika Eksperimenta, No 4,
July-August 1972, pp 26-31

involving the IAE cyclotron is described, together with the electronic equipment, and a sketch of the instrumentation is given in block form. A neutron pulse frequency of as much as 110 kHz is obtained. The authors are associated with the Institute of Atomic Energy at Moscow.

2/2

- 77 -

AA0040677 KULESHOV M.P.

UR 0482

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1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

241581 Sheet Steel Welding Machine with continuous weld deformation where to improve the weld quality of thin gauge sheet steel, a drum type welding machine was equipped with a semi-cylindrical trough 9 of a small diameter with a slot for the welding electrode 4. During welding, the steel sheets pass round the trough 9; the material expands under the heat and the edges of the sheets are bent downwards which ensures good contact of the welded seam with the backing support.

8.8.66 as 1096074/25-27. A.V. PETROV et alim(8.9.69)
Bul 14/18.6.69. Class 21h. Int.Cl.B 23k.

19

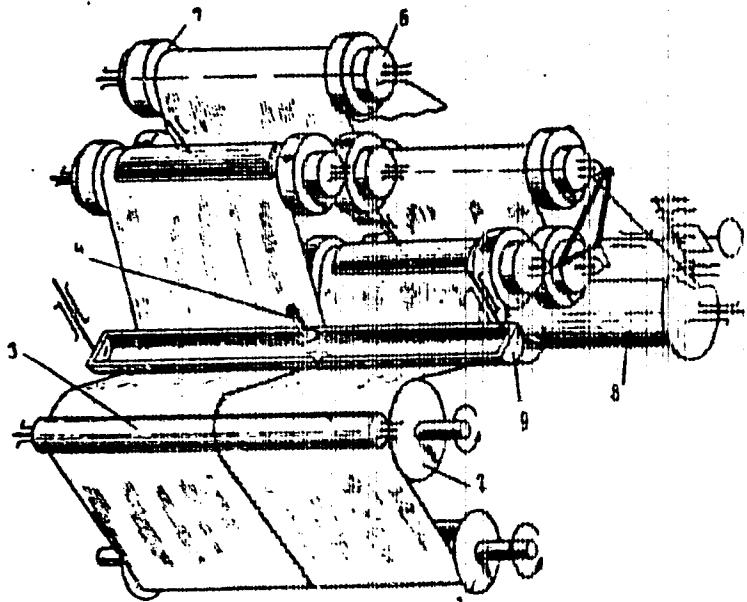
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"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002201620017-0

AA0040677



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APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002201620017-0"

AA0040677

AUTHORS: Petrov, A. V.; Slavin, G. A.; Leonov, V. B.; Kuleshov,
M. P.; Zhukov, V. F.; Shorokhov, V. I.; and Mikhailov,
B. D.

19750283

73

USSR

UDC 576.312.542

BOCHKOV, N. P., KULESHOV, N. P., SERGEYEV, A. S., and YAKOVENKO, E. N., Institute of Medical Genetics, Academy of Sciences USSR, Moscow

"Identification of Human Chromosomes Forming Dicentrics After Irradiation"

Moscow, Genetika, Vol 6, No 4, 1970, pp 179-185

Abstract: Peripheral-blood leukocytes of three adult men were irradiated with α -rays in a dose of 92 rad. The culture time was 54 hours, so that new phases of the first postirradiation mitosis were investigated. A karyotype analysis of cells with dicentrics was conducted. The experimental frequency of involvement of chromosomes in the formation of dicentrics differs from the theoretically expected one, both in respect to the length of chromosomes, and their numbers. The involvement of chromosomes in dicentrics is not random. Chromosomes of the D and E groups are involved more frequently, while the G group is involved less frequently than expected due to the length of chromosomes. Also, the dicentrics consisting of C and E, I and D, E' and E, F and G chromosomes occur more frequently, while those of I and I, C and G occur less frequently than theoretically expected. These differences are explained on the basis of different distribution of chromosomes in the nucleus.

KULESHOV, P.P.

HELION SELF-SERILLATING MAGNETOMETER WITH OPTICAL PUMPING OF He³ ATOMS

INSTITUTE FOR PHYSICS, E. S. S. A. Dzhurin, Prof. V. A. Astanin
(Physics-Technical Institute, Izmail, A. T. Loize), Leningrad. Sov. Radiotekhnika
Apparatus, Moscow, No. 90, 1972, pp. 5-9.]

USSR 1972, 53, 227-229

17/15 2/16 7/2
1/16/9 7/2
1/1

For measuring the various parameters of a geomagnetic field, over-large volume use is being made of the quantum magnetometers with optical pumping of the vapors of alkali metals or of metastable He³ atoms. These magnetometers can be built according to a system with automatic frequency tuning of the external (reference) oscillator toward the center of the working medium's resonance line or according to a self-resonating system utilizing a spin-type oscillator (self-resonating magnetometer). The self-resonating magnetometers are simpler, more compact and reliable, and provide a higher operating period.

The magnetometers using vapors of alkali metals as a working medium when compared with helium-type magnetometers reveal several shortcomings, including the nonlinear dependence between the magnetic field which is being measured and frequency of signal which is being recorded, requirement of thermionic and optical pumping of metastable He atoms, and asymmetrity of resonance line.

Whereas the action of alkali metals has been employed in the development of self-resonating magnetometers and magnetometers with automatic frequency tuning, the metastable He³ atoms were used only in magnetometers functioning according to the last setup. The development of a self-resonating magnetometer with optical pumping of metastable He atoms [1, 2] permitted us to create a device offering the possibility of a spin-type oscillator and the advantages of He³ as a working agent.

One of the basic difficulties in developing such a magnetometer was occasioned by the complexity of the optical detection of the metastable He³ atoms' laser frequency (0.7-2.1 MHz) in the range of terrestrial magnetic fields. For the effective detection of light emission with wave length $\lambda = 1.05$ microns at such frequencies, we developed two types of special

172 045

UNCLASSIFIED . PROCESSING DATE--09OCT70
TITLE--OPTICAL ORIENTATION OF PRIME85 Rb AND PRIME87 Rb ATOMS BY LIGHT OF
THE D SUB2 LINE AND RELAXATION IN THE PRIME2 P SUBTHREE HALVES STATE DUE
AUTHOR-(04)-ZHITNIKOV, R.A., KULESHOV, P.P., OKUNEVICH, A.I., SEVASTIYANOV,
B.N.

COUNTRY OF INFO--USSR

K
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOV FIZIKI, 1970, VOL 58,
NR 3, PP 831-842

DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--OPTIC PUMPING, RUBIDIUM, INERT GAS, GAS PRESSURE, ROTATING
MAGNETIC FIELD, ELECTRON ENERGY LEVEL, HYPERFINE STRUCTURE, EXCITED
ELECTRON STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1977/0006

CIRC ACCESSION NO--AP0043606

STEP NO--UR/0056/70/058/003/0831/0842

UNCLASSIFIED

2/2 045

CIRC ACCESSION NO--AP0043606

UNCLASSIFIED

PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE DEPENDENCE OF OPTICAL PUMPING SIGNALS OF RB ATOMS ON THE PRESSURE OF THE NOBLE GASES HE, NE, AR, KR AND XE IS INVESTIGATED. BY APPLYING A ROTATING MAGNETIC FIELD FOR SEPARATELY OBSERVING THE RESONANCE SIGNALS FROM TWO HYPERFINE STRUCTURE SUBLVELS OF THE RB ATOM GROUND STATE ONE CAN FIND THE CHARACTERISTIC PRESSURE OF THE INERT GAS, P SUBO PRIME, AT WHICH THE SIGNAL OF THE HYPERFINE STRUCTURE SUBLVEL WITH A LARGE PHI VALUE (PHI IS THE TOTAL MOMENTUM) VANISHES. THE VALUES OF P SUBO PRIME OBTAINED ARE EMPLOYED FOR CALCULATING THE CROSS SECTIONS FOR DISORIENTATION IN THE PRIME2 P SUBTHREE HALVES EXCITED STATE OF THE RB ATOMS DUE TO COLLISIONS WITH NOBLE GAS ATOMS.

UNCLASSIFIED

Acc. Nr.: AP0042368Ref. Code: UR 0203JPRS 50162Spin Generator with Optical Pumping for Quantum Magnetometers

(Abstract: "Spin Generator with Optical Pumping of Metastable He⁴ Atoms for Quantum Magnetometers," by V. F. Afanas'yev, R. A. Zhiltikov and P. P. Kuleshov, Physical-Technical Institute imeni A. F. Ioffe, Moscow, Geomag-
netizm i Aeronomiya, Vol. X, No 1, 1970, pp 183-184)

Quantum magnetometers with optical pumping of atoms of alkali metals and He⁴ atoms in a 2³S₁-state are now in broad use. Helium magnetometers are quite preferable to those employing atoms of alkali metals. However, spin generators are being used with the latter, whereas no spin generator with satisfactory characteristics has yet been devised for the optical pumping of metastable He⁴ atoms. The authors now report the development of a spin generator for the optical pumping of metastable He⁴ atoms which make it possible to construct quantum magnetometers combining the advantages of optical pumping of He⁴ atoms and the advantages of a spin generator. The principal difficulties in creating a spin generator for the optical pumping of He⁴ atoms in a 2³S₁ state arise due to a relatively high resonance Larmor frequency of these atoms in the earth's magnetic field (\sim 1.5 Mc/sec). Usually the photodiodes used in such apparatus have a large area of the p-n junction and due to a considerable capacitance have

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a low response at this light modulation frequency and the signal-to-noise ratio at the required width of the feedback amplifier band is too small. This difficulty was overcome by using a specially developed photodiode of the p-i-n type which was adequately responsive in the required frequency range. Optical pumping of He⁴ atoms in a 2³S₁ state is accomplished using circularly polarized light with a wavelength of 1.083 μ . In the spin generator the light modulation signal at the Larmor frequency is fed to radio-frequency coils after amplification (the article is accompanied by a block diagram of the spin generator). The frequency range in which generation is observed is determined by the band of the feedback amplifier (in this case, 900-1,500 kc/sec, which corresponds to a range of magnetic fields from 32,000 to 54,000 γ .) The signal-to-noise ratio in the generation band is not worse than 30:1.

19760319

USSR

KULESHOV, S. P., MATVEYEV, V. A., SISAKYAN, A. N.; and SMONDYREV,
M. A.

"Operator Method for Solving Quasi-Potential Equations, and the
Concept of Rectilinear Paths at High Energies"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, No 3, 1973,
pp 325-331

Abstract: An operator method is proposed for finding approximate solutions for quasi-potential equations. The formula for the latter is given. It is noted that this method is sufficiently general and can be applied to other equations in quantum field theory. The approximate solution thus obtained can be used for finding the asymptotic behavior of dispersion amplitudes in the limit of high energies and fixed impulse transfer; it can also be used for developing a regular procedure for finding corrections for the chief asymptotic term. The final section of the article indicates the connection between the operator method and functional integration methods in quantum field theory. It is stressed that, at high energies, the method is the realization of the rectilinear path concept and can be applied to the investigation of various elastic and inelastic dispersion processes. The authors express their
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KULESHOV, S. P., et al, Teoreticheskaya i Matematicheskaya Fizika,
No 3, 1973, pp 325-331

gratitude to N. N. Bogolyubov, M. K. Polivanov, and A. N. Tavkhelidze for their advice and comments.

2/2

- 105 -

1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EIKLINAL APPROXIMATION IN QUANTUM FIELD THEORY -U-

AUTHOR--(04)-BARBASHOV, B.M., KULESHOV, S.P., MATVEYEV, V.A., SISAKYAN,
A.N.
COUNTRY OF INFO--USSR

K

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 3, PP
342-352

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--QUANTUM FIELD THEORY, QUANTUM MECHANICS, SCATTERING AMPLITUDE,
FUNCTIONAL EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1315

STEP NO--UR/0646/70/003/003/0342/0352

CIRC ACCESSION NO--AP0124966

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124966

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ASYMPTOTIC BEHAVIOR OF THE SCATTERING AMPLITUDE AT HIGH ENERGIES AND FIXED MOMENTUM TRANSFERS IS INVESTIGATED IN THE (FORMULA SHOWN ON MICROFICHE) MODEL BY MEANS OF THE FUNCTIONAL INTEGRATION METHOD IN QUANTUM FIELD THEORY.

FACILITY: OB'YEDINENNYY INSTITUT.
ISSLEDOVANIY.

FACILITY: YADERNYKH

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ACCOUNT OF RADIATION CORRECTIONS FOR THE EIKONAL SCATTERING
AMPLITUDE IN QUANTUM FIELD THEORY MODEL -U-
AUTHOR--(04)-BARBASOV, B.M., KULESHOV, S.P., MATVEYEV, V.A., SISAKYAN,
A.N.
COUNTRY OF INFO--USSR
SOURCE--(JINR E2-4983)
DATE PUBLISHED-----70

K

SUBJECT AREAS--PHYSICS

TOPIC TAGS--QUANTUM FIELD THEORY, SCATTERING AMPLITUDE, APPROXIMATION
METHOD, ERROR CORRECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/2180

STEP NO--UR/0000/70/000/000/0007/0007

CIRC ACCESSION NO--AT0127544

UNCLASSIFIED

2/2 016
CIRC ACCESSION NO--AT0127544

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. THE EIKONAL REPRESENTATION FOR THE SCATTERING AMPLITUDE TAKING INTO ACCOUNT THE RADIATION CORRECTIONS IS OBTAINED BY MEANS OF THE FUNCTIONAL INTEGRATION METHOD. IN THE APPROXIMATION USED THE SUMMATION OF THE RADIATION CORRECTIONS LEADS TO THE APPEARANCE IN THE EXPRESSION FOR THE SCATTERING AMPLITUDE OF THE MULTIPLICATIVE FACTOR DEPENDING ONLY ON THE MOMENTUM TRANSFER.
FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA (JINR).

UNCLASSIFIED

Acc. Nr: NP0046165

Ref. Code: UR 0646

PRIMARY SOURCE: Teoreticheskaya i Matematicheskaya Fizika, 1970,
Vol 2, Nr 1, pp 73-79

THE GLAUBER-TYPE REPRESENTATION FOR THE AMPLITUDE
OF THE SCATTERING OF HIGH-ENERGY DIRAC PARTICLES
ON SMOOTH POTENTIALS

Kuleshov, S. P.; Matveyev, V. A.; Sargsyan, A. M.

The Glauber-type representation is deduced for the amplitude of the scattering of spin 1/2 particles on smooth potentials in the region of high energy of incident particles. The consideration is carried out in the two-component formalism and also with the aid of Dirac equation.

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D.I.

REEL/FRAME
19781242

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USSR

K UDC 620.17

KONOVALOV, Ye. G., KULESHOV, V. A., and MOLOCHKO, V. I., Physicotechnical Institute of the Academy of Sciences Belorussian SSR, Minsk Radiotechnical Institute

"Determination of an Ideally Stochastic Body With Constant Yield Point and Variable Young's Modulus"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 2, 1970, pp 104-109

Abstract: The article considers the random state function of an ideally stochastic body in which the yield point is constant and Young's modulus is a random variable which varies according to the law of uniform density.

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AA0044791 KULESHOV VI
UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

243222 SUPERSONIC DIFFUSER FOR A WIND TUNNEL provides
more versatility by making use of inter-
changeable revolving sections formed in a drum and
cooled by a common supply of water. In the diagram,
the diffuser consists of inlet and outlet portions
1,2, with the centre sections 3 built into drum 4...

and forming the working tract. To allow for
thermal deformation, the section 3 is fastened to
the front end 5 of drum 4 with the bellows
connector 6. Each section 1, in the working
position, is sealed to parts 1,2 by means of an
annular plunger on each of its ends, provided with
a rubber O-ring packing and forced against the
mating end surface of 1 or 2 by a diaphragm in an
annular intensifier chamber fed with compressed air.
18.12.67 as 1204562/40-23.L.N.KDPP et al.(24.9.69)
Bul 16/5.5.69. Class 42k. Int.Cl.G 01m.

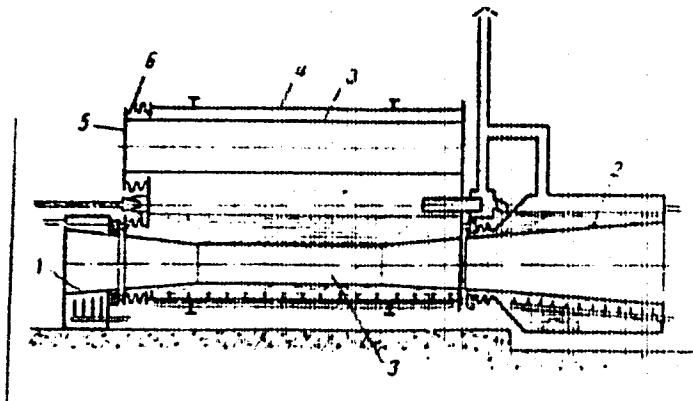
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19771613

AA0044791



AUTHORS: Kopp, L. N.; Kuleshov, V. I.; Mezhirov, I. I.;
Safronov, L. A.

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19771614

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USSR

KAZHIN, V. S., KULIKOV, M. I., POGORILOVSKYI, P. D., AND ZHILIN, S. N.

KAZHIN, V. S., KULIKOV, M. I., POGORILOVSKYI, P. D., AND ZHILIN, S. N.
YA. R., Military-Medical Academy imeni S. M. Kirova

"Toxicological Studies of the New Insect Repellent Hexamethylbenzene-sulfonamide"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolozani, No 1,
1970, pp 220-224

Abstract: The recently developed repellent hexamethylbenzenesulfonamide (HEMS) - C₁₂H₁₀N(C₆H₅)₂ - was as active as diethyl toluamide and equally effective against fleas, lice, ticks, tsetseflies, gnats, midges, and horseflies. Tests on mice, rabbits, and human beings showed that it is low toxicity. The LD₅₀ for rabbits was 7500 mg/kg when applied to the skin, 5400-6430 mg/kg when injected into the stomach, and 115 mg/kg when injected intraperitoneally. Twenty-five daily cutaneous applications of HEMS at a dose of 1 ml per 100 cm² produced no local irritation or in the surface layers, but no systematic pathological reactions. Sixty topical applications of smaller doses (0.2-0.4/100 cm²) caused slight hyperemia and edema of the skin after 2-4 applications, and about 10-12 days later. When used as a repellent agent, the dose of HEMS

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KAZHIN, V. N. et al., Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 2, 1970, pp 120-124

which was eventually sloughed off. Similar applications applied to human skin (0.5 ml/100 cm² for 25 days) failed to produce disagreeable subjective sensations (itching, burning, etc.) or any pathological changes (dryness, scaling, hyperemia, or pigmentation).

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1/2 016 UNCLASSIFIED PROCESSING DATE--09 OCT 70
TITLE--TOXICOLOGICAL TRIALS OF A NEW INSECT REPELLENT HEXAMETHYLENE

BUTANSULFAMINDE -U-

AUTHOR-(04)-KAZHDAN, V.B., KULESHOV, V.I., POZHARISSKAYA, T.D., SAVINSKIY,
YA.R.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLENZI, 1970, VOL
39, NR 2, PP 220-224
DATE PUBLISHED-----70

K
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INSECT REPELLENT, TOXICOLOGY, METHYLENE, BUTANE, AMIDE, WHITE
MOUSE, ORGANIC SULFUR COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1434

STEP NO--UR/0358/70/039/002/0220/0224

CIRC ACCESSION NO--AP0109494

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NJ--AP0109494

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AS A RESULT OF TOXICOLOGICAL INVESTIGATION OF A NEW INSECT REPELLENT, HEXAMETHYLENEBUTANSULFAMIDE (HMBS), THE AUTHORS ESTABLISHED THAT THIS DRUG HAD LOW TOXICITY FOR WARM BLOODED ANIMALS. ITS LD₅₀ FOR WHITE MICE WAS 7500 MG-KG IN EPICUTANEOUS APPLICATION, 519 MG-KG, BY THE INTRAPERITONEAL ROUTE AND 5400-6480 MG-KG, BY INTRODUCTION INTO THE STOMACH. MULTIPLE (25 TIMES) DAILY APPLICATION OF HMBS TO THE SKIN OF RABBITS IN A DOSE OF 1 G-KG (DENSITY OF 1 ML-100 CM PRIME2) PRODUCED IN THE ANIMALS NO PATHOLOGICAL MANIFESTATIONS OF GENERAL CHARACTER. TOPICALLY UNDER THESE CONDITIONS, FOCAL INFLAMMATORY SIGNS DEVELOPED IN SUPERFICIAL LAYERS OF THE SKIN. IN SIMILAR APPLICATIONS OF THE DRUG IN A DOSE OF 0.4 ML-100 CM PRIME2 THE RABBITS DEVELOPED ONLY MILD HYPEREMIA OF THE SKIN AFTER 2-4 APPLICATIONS, BUT IT DISAPPEARED IN A FEW DAYS DESPITE FURTHER APPLICATION OF THE REPELLENT. DAILY 25 TIME APPLICATION OF HMBS TO THE HUMAN SKIN IN A DOSE OF 0.4 ML-100 CM PRIME2 WHICH EXCEEDED 2 FOLD THE DOSE RECOMMENDED FOR PRACTICAL PURPOSES PRODUCED NO LOCAL CHANGES.

FACILITY: VOYENNO-MEDITINSKAYA AKADEMIYA IM. S. M. KIROVA, LENINGRAD.

UNCLASSIFIED

USSR

UDC: 621.396.668

KULESHOV, V. N., UDALOV, N. N., UDALOVA, S. N.

"Locking of a Signal With Linearly Changing Frequency in an Astatic Phase AFC System"

Kiev, IVUZ: Radicelektronika, Vol 15, No 3, Mar 72, pp 363-368

Abstract: The paper deals with the problem of establishing synchronism of an astatic phase AFC system in the case of linearly changing frequency of the input signal. It is assumed that initial conditions are random, and that the frequency of the input signal changes slowly. It is shown that there is an unstable limiting cycle which bounds the region of initial conditions under which locking into synchronism can take place on the phase plane of the phase AFC system. The probability of locking is determined as a function of initial detuning, the rate of change in the signal frequency and circuit parameters.

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- 47 -

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UDC: 621.391:519.2

KULESHOV, V. N.

"Optimum Nonlinear System for Reception of Signals With Random Phase Keying and Randomly Varying Frequency"

V sb. Metody pomokhoustoychivogo priyema ChM i FM (Methods of Interference-Free FM and PM Reception--collection of works), Moscow, "Sov. radio", 1970, pp 123-136 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A92)

Translation: The problem of finding the block diagram for a quasi-optimum receiver of signals with random phase keying and randomly varying frequency is solved by methods of the theory of nonlinear filtration of Markov processes. The instant of change from one phase value to another is a priori unknown at the reception end. Receiver errors are evaluated. Resumé.

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- 139 -

Receivers and Transmitters

UDC 621.391.8

USSR

BESPALOV, YE. S., KULESHOV, V. N.

BESPALEV, M. V., et al.
"Optimal Phase AFC System for Filtering FM Signals in Internal
Noise" 11-1970

Noise
Kiev, Izvestiya VUZ-Radioelektronika, Vol 13, No 11, 1970,
pp 1344-1348

pp 1544-1545

Abstract: This paper shows how the optimal filter for a phase AFC circuit detecting FM signals in noise with limited dispersion can be obtained by using the theory of optimal linear filtration, with the instability of the local oscillator taken into account. Considering a linear model of the phase AFC system, the authors assume it acted upon by three additive random processes: the phase deviation of a standard signal; the external of "phase" noise; the internal noise or the disturbance caused by the instability of the local oscillator frequency. They assume also that the external noise has an energy spectral density which is constant in the FM signal band, and that the phase modulation is realized by a telegraph signal. The local

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BESPALOV, YE. S., et al, Izvestiya VUZ-Radiospektroika, Vol 13,
No 11, 1970, pp 1344-1348

oscillator disturbance is assumed to be the result of shot noise. A curve is plotted for the relative mean-square error of the optimal phase AFC system which indicates that the fluctuating internal disturbance's contribution to the total error in the signal filtration is large only when the spectral intensity of the disturbance is equal to or exceeds the external noise intensity at a particular frequency.

2/2

- 61 -

USSR

UDC: 621.396.945

RZAYEV, G. I., KENGERLINSKIY, Yu. S., KULESHOV, V. N.

"On Some Characteristics of an Interference-Free Receiver for a Wireless Electrical Communications Channel with Erasure"

Za tekhn. progress (Toward Technical Progress), 1970, No 5, pp 1-3 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A251)

Translation: The paper gives a report on a theoretical study of an optimum receiver designed for isolating a signal from noises in the case of transmission over a wireless communications channel with erasure. Use of optimum phase AFC synthesized on the criterion of minimum mean square measurement error makes it possible to improve interference killing for reception of a signal which contains information on the rotational speed of a turbodrill. A receiver based on this principle is optimum only at the rated signal-to-noise ratio. The optimum receiver is a narrow-band high-speed unit with transient processes lasting no more than 2.5 seconds. Expressions are given for the variances of the phase and frequency errors of the receiver as a function of its parameters. The requirements for precision in realizing the optimum parameters are determined. Four illustrations, one table, bibliography of four titles. A. I.

1/1

KULESHOV, V.S.

Manipulators

PRINCIPLES OF CONSTRUCTION OF MANIPULATORS
(Symposium in Moscow)

(Article by Doctor of Technical Sciences A.YA. KOBRINSKY, Moscow, Institute of Applied Mathematics, Moscow, Russia, pp. 108-109)
1972.

In recent decades a new class of machines intended for the artificial reproduction of the motor functions of man has been forming at rapid rates. Those machines (manipulators) are used for the automation of labor-consuming production operations and also to perform work in zones difficult of access to man or threatening his health and life.

The development of such devices started in 1943-1944 in connection with the requirements of the atomic industry. The development of submarine and space research has greatly expanded the range of application of manipulators. Automatic manipulators (industrial robots) are widely used in various branches of industry. The theoretical principles of the creation of manipulators as machines and automata intended for artificial reproduction of the function of the supporting and moving apparatus of animals which walk on their feet are being intensively developed.

All this determined the great interest manifested by numerous scientific resources, planning and design organizations in the work of the Institute of Experimental Design and Production of Construction of Manipulators, Kiev, Ukraine, on 7-10 November.

In the introductory report (I.A. Artobolevskiy and A.Ye. Kobrinsky) an evaluation was given of the current state of the problem of manipulators, walking machines and robots, and the paths of its development were designated. In that case it was a matter of the further improvement of the functionality.

In addition to discussions of the development of industrial robots, the report also covered the development of mobile robots, their use in agriculture, and other applications. The report concluded with a brief discussion of the future of robotics.

A number of reports (V. A. Buldakov, N. A. Kholod, et al., devoted to the planning of remote-controlled manipulators, and others) were presented. The development of methods of investigating manipulator kinematic and dynamic characteristics of their master and slave arms, and the analysis and planning of mobile manipulators was also discussed. In connection with their dimensionality, properties of manipulators, which are used for their "organization," and actions of manipulators, V. S. Tashiro, V. D. Gerasimov, and others discussed methods of analysis and planning of manipulators and control information systems of manipulators.

In a large group of reports the tasks in the creation and introduction of Soviet designs of industrial robots were examined (N. N. Sushchenko, P. N. Kostylev, A. A. Ovchinnikov, and others). The reports dealt not only with questions of the theory and organization of construction of such automata but also with the preparation and structure of automation sections, various aspects of design, construction of technological equipment, and work done by means of actual computers. The discussion showed that in the very first stage one should expect with broad introduction of industrial robots in various branches of industry, experience in the operation of the first Soviet robots testifies to the broad possibilities of their application. In conclusion, the report outlined the servicing of various technological requirements.

Particular attention was given to walking devices. The report of Sverdlovsk University dealt with the development of a bipedal robot, the surface on which it walked being irregular, and the problem of multilevel control has been worked out which will enable a robot, starting with the construction of motion control, to move autonomously and up to the formation of the path of motion. The entire apparatus in that case can be divided into two

Waveguides

USSR

UDC 621.375.826:621.372.8:535

GOROSHKO, A. I. and KULESHOV, Ye. M.

"Investigating a Hollow Dielectric Waveguide for Millimeter and Submillimeter Wavelengths"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekhn. sb. (Electronics Engineering, Republic Interdepartmental Thematic Scientific-Technical Collection) No 21, 1972, pp 215-219 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D424)

Translation: The attenuation of a hybrid EM₁₁ wave is experimentally measured in a hollow dielectric waveguide with an internal diameter of 20 mm, in the 0.8-1.6 mm range. The results of the experiment are compared with the theory for waveguides of relatively large transverse dimensions. Two illustrations, bibliography of four. Resume

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USSR

UDC 615.917.547.222⁷.07:616.831-073.97

DMITRIYEVA, N. V., Candidate of Medical Sciences and KULESHOV, YE. V., Chair
of Labor Hygiene, Central Institute for Advanced Training of Physicians, Moscow

"Changes in Bioelectric Activity and Electrical Conductivity in the Brain of
Rats Chronically Poisoned With Some Chlorinated Hydrocarbons"

Moscow, Gigiyena i Sanitariya, No 4, 1971, pp 20-25

Abstract: Daily exposure of rats to several chlorinated hydrocarbons (ethylene chloride, dichloroethane, carbon tetrachloride, and tetrachloroethane) for 2 to 5 months produced two-phase changes in the electrocorticogram. The initial phase of excitation marked by an acceleration and increased amplitude of the background rhythms (especially the beta rhythm) gave way to a phase of inhibition with decreased frequency of the rapid oscillations and appearance of slow waves (including the delta rhythm which became dominant toward the end of exposure). Electrical conductivity of the tissues steadily decreased to 20 to 40% of the baseline values toward the end of exposure. Some 30 to 60 days after the end of the experiment, the electrocorticograms and electrical conductivity were almost indistinguishable from the control, suggesting that the changes in the indexes studied were functional in nature. The results
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USSR

DMITRIYEVA, V. N., Gigiyena i Sanitariya, No 4, 1971, pp 20-25

of the study support the possibility of applying the method used to the early diagnosis of latent forms of poisoning by chlorinated hydrocarbons.

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KULESHOV,

Z.N.

[Selected sections of a book by N. I. Kuleshov, "Intercity Trunk Cables," published in Moscow, Sov. radio press, 1965, pp. 1-28, 54-78.]
 Pages 1-28

INTERCITY TRUNK CABLES / Communications

[Michelangelo, 1965, Sov. radio press, Moscow, 1965, April 245-256, Intercontinental, pp. 1-28, 54-78.]

SO-14055
J. P. NOVICH

Cardex

Preface

At the present time great significance is being ascribed to the development of intercity (international) trunk cables (cable or signals of all types of electrical communications, the transmission accomplished) telephone, telegraph, phototelegraph, video telecommunications computer centers.

For the construction of communications lines and their correct operation, qualified specialists are required, possessing knowledge in various fields of communications facilities. In this book a description is given, and the theory of contemporary design of interurban communications cables is explained, problems of the construction, insulation, operation, and dismantling of interurban cable communications lines are considered. In connection with the sections concerning telegraph cables, shielded cables, cables with increased inductivity have been considerably reduced. In this book, and other sections have been considerably revised. In this book, and other sections have been considerably revised. Content given in more detail concerning the electrical parameters of communications cables multiplexed by high-frequency telephone apparatus. A section on wave guides has been added.

The book is a textbook for the section Kabel'nye lini svyazi (interurban communications cables [lines]) of the general course Kabel'nye lini svyazi (cable communications lines) for students in communications technical schools.

USSR

UDC 576.851.511.097.22

BURAVTSEVA, N. P., and KULESHOVA, L. I., Scientific Research Antiplague Institute of Caucasus and Transcaucasus, Stavropol.

"A Comparative Study of the Sensitivity of Bac. Anthracis to Various Antibiotics"

Moscow, Antibiotiki, No 11, 1971, pp 1019-1023

Abstract: By means of serial dilutions in broth and agar, 18 strains of *Bacillus anthracis* were investigated for their sensitivity to penicillin, ampicillin, methycillin, oxacillin, streptomycin, kanamycin, neomycin, tetracycline, levomycin (chloramphenicol), novobiocin, erythromycin, oleandomycin, lincomycin, vancomycin, and viomycin (florimycin). All 18 strains are sensitive to all of the above antibiotics except viomycin. However, in agar, the MIC of benzylpenicillin is 156 times higher and that of ampicillin and methycillin six times higher than in broth. *Bacillus anthracis* produces a penicillinase. Therefore, when the inoculation dose is 50 times bigger, the sensitivity of all but three strains to benzylpenicillin and ampicillin is 25-100 times smaller and to methycillin and oxacillin 2-10 times smaller. However, since the sensitivity of the three exceptional strains (1, 1051/35, and 3/45) to methycillin and oxacillin decreases 21-127 times even though they produce equal amounts of the penicillinase, it is inferred that the resistance of *Bac. anthracis* to these antibiotics is determined by more factors than just the inoculation dose.

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FEDOROVA, N. S., KUR'YANOVA, L. P., and KULESHOVA, N. N.

"Features of the Electrochemical Preparation of Sodium Hypochlorite on Titanomagnetite"

Nauch. tr. Mosk. inzh.-ekon. in-t (Collection of Works of the Moscow Engineering Economics Institute), Vyp 45, 1972, pp 116-119 (from Referativnyj Zhurnal -- Khimiya, Svodnyy Tom, No 23(II), 1972, Abstract No 234217 by G. Volkov)

Translation: Chlorine bubbles have a tendency to remain for a longer time on the surface of the titanomagnetite anode and they are much larger, as compared with the graphite anode. Therefore, application of the titanomagnetite anode results in a higher yield (by 20-30%) hypochlorite, in comparison with the graphite anode.

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USSR

UDC 621.385.032.215.6

BALABANKIN, V. YE., KULASHOV, T. F., NIKONOV, B. P., POPOVA, N. YU.

"Multilayer Materials Based On Nickel With Calcium Or Strontium For Cores Of Low-Temperature Oxide Cathodes"

Elektron. tekhnika. Nauchno-tekhnik. sb. Elektron SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 9, pp 110-116 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1A68)

Translation: A multilayer core is proposed for an oxide cathode, operating at temperatures of 850-1050° K, with the object of stabilizing the speed of entry of an activator into the oxide layer. The multilayer core is made in the form of a band of nickel with addition of calcium or strontium, covered from both sides by a film of pure nickel. An alloy of nickel with calcium or strontium and nickel of mark NVK serves as a starting material for the production of such bands. The joint of the billet is accomplished on the unit for diffusion welding A 360.08 in a vacuum at a temperature of $850 \pm 25^\circ$ C and a specific pressure of 0.8-1.0 kg/mm². The welded billets are rolled without heating, with intermediate annealings in a vacuum (or in an H₂ atmosphere) at a temperature of

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